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Electrona antarctica: an energy transmitter in the Southern Ocean

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Global warming due to increasing greenhouse gases is a major global issue. Oceans represent one of the largest sinks of CO_2.As such a detailed understanding of the global marine carbon cycle is needed. Lantern fish are an **important component of the worldwide midwater** community. Due to their daily vertical migrations coupled with high biomass, widespread distribution and planktivory, lantern fish are widely recognized as an important link in the transfer of organic carbon from lower to higher trophic levels and to deeper ocean layers. However their role in the Southern Ocean is not fully understood.

The composition and distribution of the (meso)pelagic fish communities was investigated in the South Atlantic and West Indian sectors of the Southern Ocean (2004-2008).

Larval stages of *E. antarctica*, and *N. coatsi* were found over deeper water and were positively correlated with higher temperatures and a deeper-reaching mixed layer. Post metamorphic stages of *E. antarctica* in the oceanic community were caught mostly after sunset and were negatively correlated with solar elevation. As sampling in the Southern Ocean mostly occurs during summer months, when conditions for catching mesopelagic fish such as *E. antarctica* are the worst, this would mean that the abundance of such mesopelagic fish is underestimated, including this study. *E. antarctica*, fed on a variety of mesozooplankton including copepods, amphipods and euphausiids. Mean body energy density for *E. antarctica* was 27 kJ g^{-1},There was an increase of dry weight energy density with age as well as seasonal fluctuations. Water content decreased and was a good estimate of wet weight energy density.

Our results suggest that *E. antarctica* indeed is an important component of the carbon cycle both as a predator, prey and facilitator of downward transport of organic carbon.

Keywords: Electrona antarctica, ecology, biological pump